



PRAIRIE CREEK MINE ALL SEASON ROAD PUBLIC HEARING Day 2 - April 27, 2017

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AGENDA

- Sundog Creek Realignment
- > Water Quality and Quantity
- > Fish and Aquatic Habitat
- > Vegetation



SUB-AGENDA

Sundog Creek Realignment

- > Realignment verses bridges
- > Realignment design
- > Habitat and Aquatics
- Construction and sediment



Sundog Creek Realignment



location





Sundog Creek Realignment 100-year Inundation Limits and Flow Velocities



Sundog Creek Realignment



Sundog Creek Realignment Conceptual Design Channel Realignment 2-year flow



Sundog Creek Realignment

Realigned Channel 100-year Inundation Limits and Flow Velocities Before Construction





Sundog Creek Realignment Habitat Features



Diversion Dyke



Sundog Creek Realignment Habitat Offset



New channel

Old channel (much lower flow after diversion)

Proposed road

1:2-year return water level



Location of overwintering pool(s) build to offset lost habitat



Sundog Creek Realignment

Aquatics

- Arctic grayling, likely from annual migration
- Slimy sculpin
- Limited benthos and periphyton (low productivity)

Post-Realignment

- Arctic grayling migrate through new channel
- Slimy sculpin colonize new channel
- Benthic invertebrates colonize from upstream drift and flying egg-laying adults
- New periphyton growth



Sundog Creek Realignment Downstream Environment – Summer/Fall



Sundog Creek Realignment Length of diversion relative to Sundog Creek



Sundog Creek Realignment

Construction

- Late summer/fall schedule in dry conditions
- Isolated from existing channel until completion during no flow
- > Diversion berm built late season, no flow

Sediment

- Alluvium in new channel same as in existing channel
- Wash down during construction using off-channel groundwater
- Initial spring flows unlikely to mobilize significant sediment, and in any event, limited potential for impacts as adjustment period will be over before grayling migration
- > High flows will mobilize sediment, but no different than normal



Water Quality and Quantity

Construction

- Sediment and Erosion Control Plan
- Borrow pit development plans
- > ARD/ML
- Silt controls
- Stockpile set-backs
- Blasting and timing windows
- Monitoring
- Restoration/revegetation



Water Quality and Quantity

Operations

- Sediment and Erosion Control Plan
- Maintenance of road and drainage structures
- Inspections of crossings and other drainage structures
- Water extraction for dust control
- Monitoring



Fish and Aquatic Habitat

Sub-Agenda

- Major watercourse crossings
- Inspections, preservation of passage
- Lake littoral zones
- Habitat loss, alteration, offset



Major Watercourse Crossing Casket Creek KP 6.2



Major Watercourse Crossing Sundog Creek KP 20.3



Major Watercourse Crossing Sundog Creek KP 23.3



Major Watercourse Crossing Sundog Creek KP 25.4



Major Watercourse Crossing Sundog Creek KP 28.6



Major Watercourse Crossing Sundog Creek KP 39.4



Major Watercourse Crossing Sundog Creek KP 43.2



Major Watercourse Crossing Polje Creek KP 53.3



Major Watercourse Crossing Tetcela River KP 87



Major Watercourse Crossing Tetcela River KP 89.5



Major Watercourse Crossing Grainger River KP 119



Major Watercourse Crossing Grainger River KP 121.2



Facing North-East CANADIAN ZINC Lindberg Landing Front Range Alignment to Grainger Gap Tache Nahanni Logging Road to Nahanni Access Road LIARD RIVER

Location of Liard Crossing: Ice Bridge, Barge Landings and Staging Areas

Inspections, Preservation of Passage

 Inspections of structures to ensure fish passage remains unimpeded

Lake Littoral Zones

- Summer extraction of 1-5% of lake volume
- Max. temporary littoral zone loss of similar magnitude
- Lakes not accessible to migrating fish, all but one (Gap Lake) may not support fish
- Lake annual inflows exceed outflows, no cumulative littoral zone loss



Habitat loss, alteration, offset

- Due to clear spans on major crossings, minimal habitat loss other than Sundog realignment
- Alteration of some possible fish-bearing minor crossings (culverts) and Liard River barge landing ramps
- > Over-wintering pool offset



Vegetation

- Vegetation assemblages were classified using three ecotype classification systems and generally document the dominant ecotypes
- No SARA or GNWT-listed rare plant species detected during 3 field surveys
- Neither the GNWT or Parks Canada have a tracking list and/or status for rare vegetation assemblages
- An early season precautionary rare plant survey was recommended prior to construction
- Low potential for significant effects



Thank You

